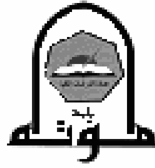


Mu'tah University
Deanship of the Graduate Studies

The Effect of Using Creative Thinking Skills on the Development of Reading Comprehension of Female Tenth Grade Students in Southern Al-Mazar Directorate of Education

By
Rawda Ahmad AL- Eidie

Supervised by
Prof. Majid AL-Khataybeh

A Thesis Submitted to the Deanship of the Graduate Studies in Partial Fulfillment of the Requirements for the Degree of Master in Curricula and English Teaching Methods in Curricula and Instruction Department

Mu'tah University, 2010

Dedication

This work is dedicated to the soul of my sister Yasmeen, my parents, sisters and brothers. To the one who helped and encouraged me to continue this thesis and gave a lot without expecting anything, my husband. To my daughters, Jana and Lama. Sons, Jawad and Laith.

Rawda Ahmad AL-Eidie

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Rawda Ahmad Al-Eidie

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Abstract

The Effect of Using Creative Thinking Skills on the Development of Reading Comprehension of Female Tenth Grade Students in Southern Al-Mazar Directorate of Education

Rawda Ahmad AL- Eidie

Mu'tah University, 2010

This study aimed at investigating the effect of using creative thinking skills(fluency, flexibility, originality) on the development of reading comprehension of female tenth grade students in Southern AL-Mazar Directorate of Education. It examined the effect of the creative thinking skills on tenth grade students' linguistic levels in English Language (high intermediate, low) through answering the following questions:

1- Is there a statistical significant effect of using creative thinking skills on the development of reading comprehension of tenth grade students?
2- Is there any statistical significant effect of using creative thinking skills on the tenth grade students' linguistic levels (high, intermediate and low) in reading comprehension?

The sample of the study consisted of (53) female tenth grade students from Al- Hussaineih Secondary School for Girls were assigned randomly into two groups; an experimental group of (26) students and a control group of (27) students.

To achieve the purpose of the study, a reading comprehension test, which was assessed for validity and reliability, was designed as a pre and post test. A t-test was conducted to test the equivalence of the two groups and analysis of Covariance (ANCOVA)was used to test the significance of the difference between the post-test means for both groups and to test the significance of the difference between the three levels (high, intermediate, low), also Scheffe for multiple comparisons was used.

The findings of the study were as follows:

1- There was a statistically significant effect ($\alpha \leq 0.05$) for using creative thinking skills (fluency, flexibility, originality) on the development of the students' reading comprehension.

2- There was a statistically significant effect of using creative thinking skills (fluency, flexibility, originality) on the students' linguistic levels (high, intermediate, low) in reading comprehension. According to these findings, it is recommended that teachers, and educators should use creative thinking skills as a method of teaching to develop reading comprehension. Also it is recommended that researchers should investigate the effect of using creative thinking skills on other skills of English Language especially the writing skill .

الملخص

أثر استخدام مهارات التفكير الإبداعي في تطوير الاستيعاب القرائي لدى طالبات الصف العاشر الأساسي في مديرية تربية المزار الجنوبي

روضة أحمد العيدي

جامعة مؤتة، 2010م

هدفت هذه الدراسة إلى تقصي أثر استخدام مهارات التفكير الإبداعي (الطلاقة، المرونة، الأصالة) على تطوير الاستيعاب القرائي لدى طالبات الصف العاشر الأساسي في مديرية التربية والتعليم للواء المزار الجنوبي و التعرف إلى أثر هذه المهارات على المستوى اللغوي (عالي، متوسط، متدني) لطالبات الصف العاشر في مبحث اللغة الانجليزية وذلك من خلال الإجابة عن الأسئلة التالية:

1- هل يوجد أثر ذو دلالة إحصائية لاستخدام مهارات التفكير الإبداعي على تطوير الاستيعاب القرائي لدى طالبات الصف العاشر الأساسي؟

2- هل يوجد أثر ذو دلالة إحصائية ($0.05 \geq \alpha$) لاستخدام مهارات التفكير الإبداعي على المستوى اللغوي لطالبات الصف العاشر في مهارة الاستيعاب القرائي؟

تكونت عينة الدراسة من (53) طالبة من طالبات الصف العاشر في مدرسة الحسينية الثانوية للبنات، حيث قسمت عشوائياً إلى مجموعتين تجريبية وتكونت من (26) طالبة، وضابطة تكونت من (27) طالبة. ولتحقيق هدف الدراسة، أعد اختبار تحصيلي في الاستيعاب القرائي وطبق بشكل قبلي وبعدي على مجموعتي الدراسة. وتحققت دلالات الصدق والثبات للاختبار و باستخدام اختبارt-test وتحليل التغاير (ANCOVA) تم قياس تكافؤ المجموعات وضبط الفروقات، وتم التعامل مع البيانات إحصائيا باستخدام تحليل التغاير (ANCOVA) وشافيه للمقارنات البعدية. وأشارت نتائج الدراسة إلى يوجد أثر ذو دلالة إحصائية ($0.05 \geq \alpha$) لاستخدام مهارات التفكير الإبداعي (الطلاقة، المرونة، الأصالة) على تطوير مهارة الاستيعاب القرائي لدى الطالبات. يوجد أثر ذو دلالة إحصائية ($0.05 \geq \alpha$) لاستخدام مهارات التفكير الإبداعي (الطلاقة، المرونة، الأصالة) على المستوى اللغوي للطالبات (عالي، متوسط، متدني) في مهارة الاستيعاب القرائي لصالح المستوى العالي. وأوصت الدراسة كل من المعلمين والمتعلمين باستخدام مهارات التفكير الإبداعي كطريقة من طرق التدريس وذلك لتطوير مهارة الاستيعاب القرائي، وأوصت الباحثين بإجراء دراسات لتقصي أثر استخدام مهارات التفكير الإبداعي على مهارات اللغة الانجليزية الأخرى وبخاصة مهارة الكتابة.

Chapter One
Theoretical Background

1.1 Background of the Study

Developing reading comprehension in a foreign language is necessary because reading is probably considered the most important and demanding skill that a learner of English as a foreign language requires since it serves as a means of communication to success in Today's world as well as a basic tool of learning .In many parts of the world, reading knowledge of a foreign language is very important to academic studies, professional success, and personal development. This is particularly true to English since, English is an international language and a lot of professional, technical and scientific literature is published in English today (Urquhart and Weir, 1998).

Staiger - cited in Dori (2003)- viewed that one of the main aims of teaching English Language is to enable students to comprehend written English, he viewed that the basic goals of reading enable students to gain an understanding of the world and themselves, to develop appreciations and interests, and to find solutions to personal problems.

Alderson - cited in Dori (2003,p.1) - stated the following question" Is foreign language reading a reading problem or a language problem?"

Alderson stated that there are two hypotheses associated with a foreign language reading. The first hypothesis is the Linguistic Threshold Hypothesis (LTH) which entails that in order to read effectively in a foreign language, a level of second language linguistic ability must first be achieved. The second hypothesis is as the Linguistic Interdependence Hypothesis (LIH),which entails that reading performance in a foreign language is largely shared with reading ability in the first language. The idea is the ability to read has been acquired in L1, it can be transferred to a foreign language .

These hypotheses have important implications for the teaching of reading; if the cause of Foreign Language (FL) reading problem is a language problem, teachers of English should concentrate on improving the language knowledge through text adaptation and encouraging the use of appropriate methods. If, however, the cause of FL reading problem is poor reading ability in the first language, teachers and students of the FL should be encouraged to adapt successful reading strategies and methods. Moreover, in order to develop good readers, teachers are encouraged to utilize various methods and techniques in teaching reading (Grabe and Stoller,2001).

Ruddell (1994)stated that the teaching of reading in schools has become a subject of great concern in education in all areas of the world. To those involved in the movement for curriculum reform, it is increasingly evident

that effective reading is basic to progress in learning in other subjects. In fact the ability to read in English is required of most university students by their subject departments, often assessed by a language test including reading comprehension.

The researcher thinks that teaching reading comprehension to some extent is neglected by teachers in the classroom. Although Action Pack series was developed according to the communicative approach where the four skills are integrated (listening, speaking, reading and writing) to enable students to communicate and to have a better understanding of the text, to think, to analyze the text, to infer and generate as many ideas as they can. Teachers of English as a foreign language might not give reading comprehension much attention and emphasis while teaching their students.

Since, the world is changing rapidly, it is essential to promote the ability of creative thinking and cultural adaptability, although educational system in Jordan is designed to promote innovative or creative thinking that students need, many students tend to rely on the slow and careful reading of texts from start to finish, and they face many difficulties while reading activities; requiring the use of skills for reading quickly, efficiently and creatively (Kadir,2007).

In the view of the developments of the educational system in Jordan and in the light of the information age and the scientific challenges of the 21st century, it is necessary to develop Jordanian students' thinking skills to be able to guide economic growth which in turn, enables Jordan to compete effectively in the global marketplace (MOE,2001). According to the Jordan Vision 2020 as expressed in Hamzeh (2000),the educational system may be developed by modifying school curricula to enhance creativity and innovation. In addition, the ability of the educational system to develop creativity and innovation among students will be a cornerstone of an educational system that contributes to the development of a knowledge economy in Jordan. To do this, the educational system must be capable of nurturing an environment that encourages students to think creatively, innovate in solving problems(MOE,2006).

The current study investigating reading comprehension in the classroom suggests a lack of instructional methods and strategies that causes a lack of reading comprehension skills among many students in today's classrooms. (Farstrup,2002) stated that it is of great importance that teachers should be aware and knowledgeable of the many instructional methods and strategies available to promote students' reading comprehension, motivate students towards reading, promote their interest and encouragement in reading comprehension, develop their reading comprehension skills, and aid them in accomplishing reading comprehension tasks successfully.

One of the effective instructional methods that can achieve such previous mentioned goals is using the creative thinking skills: (Fluency, Flexibility, and Originality) in teaching students how to generate , suggest new ideas for a given situation or from a given written material ,how to ask and answer creative questions and make guessing about the written material.

One should understand that schools and universities are by definition public units dedicated to transmitting and perpetuating confirmed knowledge and traditions of a given society. However, the very educational process of helping students acquire the creative thinking skills for unlimited creation of knowledge and information is supposed to be the most significant creative process. So the Ministry of Education has to restructure the school education environment- teachers, curriculum, evaluation- and attempt to help the schools resume their constitutional role of creation (Cho ,Moon and Park 1994).

Han - cited in Cho,Moon and Park (1994) - stated that high school students came to show great interest in creative thinking or divergent thinking and attempt to sharpen their critical thinking abilities rather than memorizing power. Also Adair(2007) stated that:

> **" teaching students to become creative thinkers is recognized as an immediate goal of education. If students are to function successfully in a highly technical society, they must be equipped with life long learning and necessary thinking skills to acquire ."(p.4)**

Also, Elliiott (2004) mentioned that:

> **" creative thinking is important since it provides students with a sophisticated understanding of international affairs, but to develop skill sets that can be used in a wide variety of creativity. The curriculum stresses creativity and creative thinking, allowing our students to respond to the demands of the rapidly changing in the world". (p.1)**

Poon Tong (2000) indicated that teaching reading skill creatively means that students of FL may come up with new ideas. It is generating ideas which have not been generated before, students can read to generate ideas, analyze and synthesize. Poon Tong added that creative reading includes reading for implied and inferred meanings, appreciative reactions, and critical evaluations. Discussion of questions such as "What do you think will happen now?" "Why?" " How?", requires reading for implied and inferred meanings. Literal comprehension of the facts is basic to this type of reading. But the reader is required to go beyond, to read between the lines and perhaps to derive original meanings and ideas in relationship to his own experience. So that teachers of English should stimulate and develop students' abilities and skills of creative thinking.

In light of the significant of creative thinking on students and community as mentioned above, fostering creative thinking skills is

essential to safeguarding a democratic community with an able thinking citizenry ensuring a competent work. So the current study investigated the effect of using creative thinking skills on the development of reading comprehension of female tenth grade students in Southern Al-Mazar Directorate of Education.

1.2 Statement of the Problem

The problem of the study can be represented by the fact that there is a need for Jordanian teachers to be aware of effective instructional methods and strategies to develop Jordanian students' reading comprehension skills. Most Jordanian students lack the reading skills necessary for adequate comprehension because teachers continue to use the traditional method (MOE,2004)

As a teacher of English Language for 16 years at Southern Al- Mazar Directorate of Education, the researcher noticed that most students learning English as a foreign language face difficulties while reading English texts in addition teachers of English of the secondary schools of Southern Al-Mazar Directorate of Education complain about the inability of many of their students to comprehend written texts or answer questions such as, inferential, referential, or personal. In addition, the students' low achievement in reading comprehension is a matter of concern for the officials in the Ministry of Education. Also, there is a general feeling among teachers of English Language that the traditional method is inadequate as far as teaching reading comprehension is concerned. Also, the Teacher's Book method implies that students read in a linear way, which doesn't encourage students to analyze, infer, connect, synthesize, think and rethink, and generate new ideas in an adequate way.

Laboda (2008) stated that people think that creative thinking is only related to design and marketing and the central of Science and Business. Also Jordanian secondary school teachers consider teaching creative thinking in Scientific subjects more than in non- Scientific subjects (MOE,2001). Consequently this study comes as a response towards recent tendencies by the Ministry of Education for highlighting the crucial role of creative thinking and communication in the classroom. Also, the concern of the present research may lead to renew the focus of education and invites English Language teachers to use new and creative instructional strategies which encourage students to think creatively and to be decision makers, productive and to respond to the demands of the rapidly changing world.

1.3 Purpose of the Study

The main purpose of the current study is to investigate the effect of using creative thinking skills on the development of reading comprehension

of female tenth grade students in Southern Al- Mazar Directorate of Education.

1.4 Questions of the Study

To achieve the purpose of the current study, the following research questions were addressed:-

1. Is there a statistical significant effect of using creative thinking skills on the development of reading comprehension of tenth grade students?
2. Is there any statistical significant effect of using creative thinking skills on the tenth grade students' linguistic levels (high, intermediate and Low) in reading comprehension?

1.5 Significance of the Study

This study is chosen on the basis of the orientation established by the Ministry of Education and on the Mission of the Ministry of Education in Jordan which shows that creative thinking is one of the most important skills students in Jordan need to develop in order to create an educational system based on 'Excellence', also to develop the high thinking skills energized by the students, dedicated to high standards, social values which contributes to the nation's wealth in a global knowledge Economy.

This study is significant for several reasons; First, beyond the researcher's knowledge there were no studies conducted in this regard in Jordan. Second, it encourages students to be creative thinkers, open-minded, decision makers and capable of solving problems in the age of information and technology. Third, this study may, also, provide information that would assist educators and teachers of English as a Foreign Language (EFL) as well as researches to understand good teaching, and in turn to formulate more effective instructional methods and strategies in the area of reading comprehension. Fourth, curriculum designers may find this study helpful in constructing textbooks. Fifth, it helps students to communicate creatively by developing their reading comprehension. Therefore, this study is an attempt to examine the effect of using creative thinking skills (Fluency, Flexibility, and Originality) in enhancing students' reading comprehension skills.

1. 6 Limitations of the Study

First, only three reading texts were employed in teaching reading through the use of creative thinking skills. Second, only three skills of creative thinking skills(Fluency, Flexibility, and Originality) were used in teaching the experimental group using creative thinking skills. Fifth, the findings are limited to the duration of the training program, longer training period may result in different findings

1. 7 Operational Definition of Terms

The following are definitions of terms as used by the researcher in the present study:

1) **Tenth grade:** It is the highest class of the basic stage. The students are about sixteen years old. They have spent ten years studying English Language according to the regulations of the Ministry of Education in Jordan.
2) **Creative thinking skills:** cognitive skills that increase the probability of desirable outcome which the researcher want to train the tenth grade students on, as well as, to realize their effect on students' achievement. In this study, they are; fluency, flexibility, originality and elaboration.
3) **Reading comprehension**: the act of mind or the power of understanding meanings uses…etc. which will be measured by the comprehension test that will be prepared by the researcher.
4) **The traditional method:** The method that is used in the classroom where the teacher follows the suggested procedures of the Teachers' Guide in the teaching learning process.

Chapter Two
Review of Literature

This chapter is divided into two parts; theoretical framework and review of related literature.

2.1 Theoretical Framework

Reading is multifaceted, complex skill made up of a number of psychological, physical and social elements. It seems to be the most attainable language skill for students in countries where English is not widely spoken. In language pedagogy, inadequate attention is devoted to this skill. English language teachers often have no opportunity to obtain an overview of the vast amount of research that has been done on reading process (Mosback, 1996).

Goodman - cited in (AL-Alami,1992) - emphasized that reading is a psycholinguistic process by which the reader reconstructs a message that has been encoded by a writer. He views reading as an interaction among three essential factors: the reader's background knowledge, his conceptual abilities, and his processing strategies. All of these factors are important to achieve efficient reading which is essential prerequisite for success in today's world. The definitions given by Goodman assumes that reading is an interactive process, the reader forms predictions about the content cues necessary to make him decide to confirm or reject these predictions. So, reading is neither passive nor active, it is an interactive skill in which the reader interacts with the text and employs his previous background knowledge to get the meaning (Rababa'h,1991).

Researchers such as: (Gronlund,1981 & Hyde, 2002) have divided the reading process into three basic skills: vocabulary, decoding, and comprehension. Vocabulary is defined as the recognition of words and their meanings. Decoding is defined as discrimination and analysis of paragraphs and other written material, while comprehension requires relevant background knowledge and their application of general reading strategies, such as predicting the content of the text, guessing the meaning of unknown words from the context, making inferences, recognizing the text and text structure, and grasping the main idea of each paragraph (Hyde, 2002).

Like thinking which has been categorized into four skills, reading is a skill- based activity. (Eby & Smutny, 1990) suggested that reading comprehension has eight skills; locating details, recognizing the main ideas, recognizing the sequence of events, drawing conclusions, recognizing cause and effect relationship, understanding words contextually, making interpretation, and making inference from text. However (Wade, 2003) proposed four skills of reading comprehension;

literal reorganization, inferential, evaluative and creative. Where as (Cain, Oakhill & Bryant, 2004) proposed five skills including the literal, reorganization, inferential, critical and creative.

(Zabin, 1993 & McNeil, 1992) viewed that the overall purpose for teaching reading is to develop the attitudes, abilities, and skills that are important for getting information, fostering and reaching to ideas, developing interests and finally deriving pleasure by reading through comprehension. They stated that the publicly known purpose of reading, which is comprehension or getting meaning from written texts, is more than remembering and understanding It is" critical and creative thinking", that is, it requires questioning and finding or establishing associations, it is the process of organizing and relating new information and ideas to one's previous knowledge when individuals generate images and ideas for what they encounter in the written text, their images and ideas assist them in transferring and linking meaning from old information and ideas to new. This means that there must be interaction between new information or ideas in the text and what the reader knows, in order for comprehension to occur. McNeil(1992) added that the new information in the text should be comprehensible, well- organized and meaningful, so learners can activate their knowledge through the prediction of the content, generate new information and ideas and to be creative thinkers.

Moorman & Ram (1994) stated that creative reading has been largely ignored; while creativity is recognized as a central and crucial issue in reading. They defined creative reading as reading which includes novel concepts which the reader must creatively understand in order to comprehend the text. They added that active engagement of the text is a pre-requisite for the text into their own backgrounds. They explained that in order to read creatively, a person must be capable of a number of levels, from simple decoding of the words into internal concepts to the active engagement of the text and building of complex mental worlds to model the textual that creative reading is apart of all successful reading experiences. They mentioned one of the major misconceptions is that creative reading should be delayed until later grades. Every student at every level can engage in creative reading. This is not to say that all students can think on the same level. Of course, individual differences exist. But, opportunities for developing creative reading abilities must be included in the reading instruction at all levels.

To achieve the goals of teaching reading and to encourage students to read creatively, there are many methods and techniques that can be adopted by teachers of EFL. One of these methods is using the creative thinking skills (Fluency, Flexibility, and Originality).

2.1.1 Definition of Creative Thinking

There is no single definition of creative thinking. Creative thinking is hard to define, because it is difficult to determine what is creative. Is it a person, a characteristic, an idea, a category of ability, a way of applying intelligence that results in giftedness or a product? (Runco,2004). Some definitions explained creative thinking as new and original ways of doing and thinking of things.

Aldous (2005) mentioned that a widely accepted definition of creative thinking describes it as a process leading to the production of a result, or a concept, that is unique and usable.

Creativity can be defined as a combination of thinking and innovation that is, a notion of different intelligences working together. This is accomplished by using a combination of 'seeing, thinking and innovating'. The investigation by (Bromfield, 2002) investigated the notion of surprise, and described creative thinking as an ability to discover new ideas that are surprising and intelligible.

Creative thinking is defined as a novel way of seeing or doing things, also it's a divergent or lateral thinking way which requires imagination and leads to more than one answer (Debra, 2007).

Van Hook and Tegano (2002,p.1) defined creativity as " an interpersonal process by means of which original, high- quality and genuinely significant products are developed", also they mentioned that when faced with challenges, a creative person is curious, optimistic, able to suspend judgment and comfortable with imagination. Creative persons also tend to seek problems, enjoy challenges, see problems as opportunities and interesting, view problems emotionally acceptable, challenge assumptions, refuse to give up easily, and persevere.

Edwards (2001) added that creativity involves "the openness to ideas and the willingness to encourage the exploration of the unknown, even if not easily manageable" (p.222). Creativity also includes a wide range of interpretations and beliefs based on an individual's personal style and experience.

Harris (1998, P.15) defined creative thinking as:

> **"The ability to imagine or invent some thing new, the ability to generate new ideas by combining, changing, or reapplying existing ideas. The ability to accept and newness, a willingness to play with ideas and possibilities , a flexibility of change outlook, the habit of the good, while looking for ways to improve it."**

Theorists such as Torrance (1962, 1972) and Guilford - cited in Fishkin (1999) - suggested that creative thinking emerges from the rational thought aspect of brain functions. Torrance defined creative thinking as **"a process of becoming sensitive to problems, deficiencies, gaps in knowledge, missing elements, disharmonies and so on: identifying the**

difficulty: searching for solutions, making guesses, or formulating hypotheses about the deficiencies; testing and retesting these hypotheses and possibly modifying and retesting them; and finally communicating the results" (Torrance,1988,p.47)

Guilford cited in Fishkin (1999) interpreted creative thinking as aptitude traits that involves creating something new or original. It involves the skills of flexibility, originality, fluency, elaboration, brainstorming, modification, imagery, associative thinking, attribute listing, metaphorical thinking, forced relationships. He added that the aim of creative thinking is to stimulate curiosity and promote divergence.

Wu - cited in (Cho, Moon & Park, 1994) - indicated that creative thinking requires individuality and independence of thought, including spontaneity, originality, flexibility, and fluency, in addition to original thinking. He also summarized what would encourage students' creative thinking skills and creativity as the following:

1. Learning is important and fun.
2. Students should be active learners.
3. Students should feel both comfortable and stimulated in their classroom.
4. Students should have a sense of ownership and achievement in their classroom.
5. Teachers are resources not drill sergeants.
6. Students should feel free to discuss problems with both teachers and their peers.
7. Cooperation is always preferable to competition.
8. Learning experiences should be as close to children's real- world as possible.

Boden (1994) defined creative thinking as a novel combination of old ideas, the novel combinations must be valuable in some ways. Also, she defined creativity as a puzzle or a paradox.

Creative thinking is perceived by (Swartz, 1998, p.167) as the generation of possibilities. He described creative thinking as the active use of our creative imagination. He suggested that generating ideas as a result of the past experience, which furnishes the raw material of creative thought, and the ability to take a part and creatively combine ingredients from past experience.

Facione (1998) described creative or innovative thinking as the kind of thinking that leads to new insights, novel approaches, fresh perspectives, and whole new ways of understanding and conceiving things. (Robinson, 2001) emphasized how creativity can be rooted in imaginative thought, in envisaging new possibilities. In schools, development of imagination productively and creatively should be focused upon. Nurturing and eliciting the internal private imaginings to explicit, appropriate and applicable ideas

for and within learning should be key for teacher, students should not be hesitant and feel reluctant to proffer diverse, alternate propositions or products.

Clark (1983) defined Creativity as a mental and social process involving the discovery of new or concepts, or new associations of the creative mind between existing ideas or concepts. Thinking deliberately in ways that improve the likelihood of new thoughts occurring. Maximizing the ability of the brain to think of new ideas. The ability to think of original, diverse and elaborate ideas. A series of mental actions which produce changes and developments of thought.

From all these definitions, the researcher concluded that creative thinking is the process which we use to come up with new idea. It is the merging of ideas which have not been merged before. It is a novel way of seeing or doing things characterized by four thinking processes; fluency (generating many ideas), flexibility (which is occurred when a person easily shifts his or her perspective about a topic being considered.), originality (conceiving new ideas or solutions), and elaboration (the ability to build on other ideas).

(Debra, 2007) stated that creative thinking involves four major stages and each stage needs to be properly worked; Firstly, preparation, where much of the work is done, which is the information gathering, analysis and solution exploration, Secondly, incubation or cerebration which is letting the mind work to continue the process sub-consciously. Thirdly, illumination which is inspiration which can come when the individual is not necessarily thinking about the problem, but is in a relaxed frame of mind. Fourthly, application where individual works out the creative idea and turn it into some thing new, it involves gathering the right data and asking the right questions

2.1.2 Creative Thinking Skills

Guilford - cited in Fishkin (1999) - viewed aptitude for creative thinking as a trait that is related to several skills:

1. **Fluency :** the ability to generate many solutions or alternatives that all fit some requirement such as, listing all the synonyms for a certain word, or think of several possible ways to …. , come up with ideas for…, and list as many ways to…..

A fluent student is the one who can list many potential solutions to a problem. In fluency, quantity is more important than quality, because students will later reflect on their responses and decide which ideas worth keeping (Fishkin ,1999).

In creative problem solving, impractical ideas are valued just as much as practical ideas. Solutions come from unexpected sources, and students should be encouraged to look at all possible sources in the initial stages of

solving problems. Students are ready to understand fluency and use it in basic problem solving in elementary schools, but they need to be able to write or type for 10-15 minute stretches. For this reason, fluency may be a good activity for 4th and 5th graders rather than earlier elementary, but like so many things in gifted education, it depends on the student. It is important that students understand why they are being asked to write in such great quantities... teaching fluency might be as simple as giving students a topic and asking them to list possibilities. For example, ask students to list things that are green, or ask them to list things that are fluffy. One word answers are fine. The students should give as many answers as possible in the given amount of time, perhaps 10-15 minutes. It is important that teachers tell students spelling is not an issue. They are simply recording their ideas and writing them to avoid repetition.

To grade fluency, students should be able to generate multiple answers for a given topic or question, and that is one criteria for grading, because answers come at different rates for different people, even among the gifted. Fluency is one element of creative problem solving, and it is a foundation element that should be taught early in the problem solving process. Fluency can be measured on both the figural and verbal tests of (Torrance Tests of Creative Thinking).Fluency is a measure of an individual's ability to respond both to a single stimulus in several different ways (Torrance, 1977)

2- Flexibility: thinking in a variety of categories and taking several approaches. Also it is the ability to change approaches to a problem such as being able to solve a series of tasks that each requires a different strategy. For example, think of different kinds of reasons for……. ,list as many different ways to……. .

A student who demonstrates flexible thinking is one who can group ideas into different categories. After learning fluency**,** which is the ability to generate ideas, students should be able to categorize those ideas. Flexible thinking is an important part of creative problem solving, because problems are often solved by looking at a variety of sources. Solutions come from unexpected directions, and students should be encouraged to think flexibly -in a variety of categories- while solving problems. Before learning flexibility, students should have a good understanding of fluency. Teachers should either have students generate lists of ideas, or have lists of ideas available to students. At the elementary level, it is important that teachers introduce students to flexible thinking using concrete ideas (Fishkin,1999).

To grade flexibility students should be able to put a large list of ideas into a variety of groups. If a student has trouble categorizing ideas, the teacher first needs to make sure that the original list had obvious groupings. If the list did not lend itself to flexible thinking, a low number of groups would be acceptable. If the list had a variety of different options, teachers should expect a higher number of groupings. Flexible thinking takes time

and practice to develop. Grades should reflect growth in ability, rather than meeting a set number of groups. Torrance (1979) viewed that flexibility can be measured only on the verbal test of Torrance Tests of Creative Thinking (TTCT)

3- Originality: is the ability to arrive at novel, unusual, non- conforming conclusions- uniqueness, or the ability to generate unusual solutions. For example, think of unique and unusual ways to……. Or think of ideas no- one else will think of……... . Sternberg (2003) stated that the originality may offer a fresh idea and it should be productive, resulting in valuable outcomes, also it should celebrate those who think independently and do not necessarily conform to others' views. As well as, it should be expressive in the way ideas are conveyed, and inventive, that is original, and offer potentially promising ideas. Torrance (1977) viewed that originality can be measured on both figural and verbal tests based on the statistical infrequency of a pertinent response. A measure of the unusualness of a response.

4- Elaboration: is the ability to add details and develop ideas, for example think of details to develop your main idea or add supplementary to make the basic idea clearer. It assessed only on the figural test, this is a measure of a person's ability to add details and to create a more complete response. This score has been found to correlate most with school achievement (Torrance, 1979)

2.1.3 Methods of Creative Thinking

Harris (1998) summarized five classic methods to produce creative results:

1- Evolution: this is the method of incremental improvement. New ideas stem from other ideas, new solutions from previous ones, the new ones slightly improved over the old ones. Many of the very sophisticated things we enjoy today developed through a long period of constant incremental thinking. Making something a little better here and a little better there gradually makes the process or product much better. Harris showed that:" the evolutionary method of creativity also reminds us of that critical principle: every problem that has been solved can be solved again in a better way."

2- Synthesis: with this method two or more existing ideas are combined into a new idea. Synthesis is the highest level of Bloom's Revised Taxonomy. For example, educators can develop scenarios in which students must combine separate ideas to form a valid solution. By doing this, students utilize higher-order thinking skills as they engage in problem-solving activities. Encouraging students to search for the answers instead of giving them out will help them use their creative thinking skills.

3- Revolution: providing a new idea that is completely different from a previous idea, or a significant change from the previous ideas. An evolutionary improvement philosophy might cause a teacher to ask, "How can I make my lectures better?" A revolutionary idea might be, "Why not stop lecturing and have the students teach each other, working as teams or presenting reports?" Revolutionary thinking is proverbially known as "thinking outside of the box," which requires a major shift in how one thinks about the problem, topic, process or product.

4- Reapplication: in this method the creative thinker looks at something in a new way. and discover how something can be reapplied. The key is to see beyond the previous or stated applications for some idea, solution or thing and to see what other applications are possible.

5- Changing Direction: the final classic method of creative thinking is changing direction. Harris (1998) mentioned that Many creative breakthroughs occur when attention is shifted from one perspective to another, known as creative insight. A critical truth to remember in problem solving is that: the goal is to solve the problem, not to implement a particular solution. When one solution path is not working, the creative thinker shifts to another path. There is no commitment to a particular path, only to a particular goal. Path fixation can sometimes be a problem for those who do not understand this; they become overcommitted to a path that does not work, resulting in frustration and decreased motivation.

2.1.4 Strategies of Promoting and Developing Creative Thinking

Teachers should consider their role as a facilitator of creative thinking and help students develop and improve their creative thinking abilities. By examining their teaching strategies, educators can implement classroom and teaching practices which engage students in the creative process, allowing them to follow their own thinking and not simply repeat what the teacher has said. Educators should guide students to seek imaginative, appropriate and ethical solutions to problems. The creative thinking process allows students to engage in active learning, becoming part of the solution-finding process. This style of thinking and learning allows students to become a part of the teaching process and not just the regurgitation of memorized information (Ward, Smith & Valid, 1997) .

It has been said that students lose their creative ability because of the structure of the educational system present in today's society, and because of the interaction between the person and the learning context determines creativity, Csikszentmihalyi, 1990, 1996; Gardner, 1993; Sternberg and Lubart, 1995), recommend that teachers should help students to develop and bring out their creative abilities. (Sternberg,2003) summarized a list

of strategies that can be used to help teachers to create and facilitate an environment that promotes and develops creative thinking as the following:

Before Class Begin

a) Establish classroom rules that promote openness among students to generate ideas.
b) Be supportive but allow students to develop independence and initiative.
c) Set the stage for creative thinking by having a list of topics to start the creative process.
d) Use real- life examples and mistakes as case studies to generate further thought and possible answers.
e) Resist the temptation to follow a dictated path, such as subservient class schedules and assessment measurement.

During Class

a) Encourage students to create, discover, explore, imagine and suppose.
b) Be warm and supportive but allow students to develop independence and initiative.
c) Brainstorm ideas and encourage students to ask questions.
d) Promote a team concept, work to achieve common goals and foster a team spirit among students.
e) Recognize and tolerate the unusual.
f) Help students to resist peer pressure to conform for conformity's sake.
g) Help students make constructive evaluation of their work, and do not overuse evaluation.
h) Model expected student behaviour.
i) Reward students for doing things differently and creatively.

2. 1. 5 The Importance of Creative Thinking

Creative thinking is extremely valuable to individuals and society in the present digital age and changeable world. It is related to creativity, productivity, adaptability and health, and it benefits individuals, institutions and societies as mentioned by Torrance - cited in Isaksen and Treffinger (1993) – that world wide changes had been rapid, and this trend has continued. Tomorrow's world will be vastly different for today's children. They will do kinds of work that do not exist now. This work will require abilities, skills, attitudes, and information that we cannot even imagine today. When ever one is faced with a new problem some degree of creativity is needed. Torrance added because of the rapid and fast changes in society, individuals will need a higher level of creativity. There is a need for increasingly more creativity just for living and adapting to the demands of this high- change world. Since coping with rapid changes more practice in using creative thinking skills, we would expect an increase in creative

abilities among school children, as well as adults. Floisted- cited in Isaken and Treffinger (1993) viewed that the overall purpose of creative thinking is to improve the quality of life in the society.

Landau – cited in Cho, Moon & Park (1994)- added that creativity means communication; the individual is in constant contact with his outer and inner world. The open- mindeness with which the individual experiences the world around him enables him to recognize and to be aware of the problems. Also she viewed that: "creative thinking and creativity is a quality existing to greater or lesser extent in every individual, which enables him to associate items of information, materials and experience which were previously unrelated. This association or relationship usually originates in new insight into familiar situations and reflects a new or improved idea, experiment, product or structure. This quality is the common base of every creative process in Education, Science, Arts or any other field.

Contemporary societies have been improving their culture and civilization. In order to achieve the desirable progress, they need to develop their human resources of scholar's executives, engineers and artist. The education system is the basis for this development for those changes to take place, we need to develop minds, which cannot only think of the best solutions to our present problems but also of creative ways to deal with them. This is why Poon Tang (2000) suggested that new disciplines and courses are needed to vitalize the curriculum in order to meet the challenge and demands of new world of teaching and learning.

Adair (2007) denoted that every person needs the opportunity to be creative; they add that when individuals meet life's challenges and resolve problems, they are being creative. Therefore, it is time to foster creativity in our EFL curricula.(Cropley, 2001) assures that the fostering of creative thinking in classroom is part of educational efforts aiming at the development of individuals capable of maximizing their own self-fulfillments. (Simonton, 2004,P.23) described teaching creative thinking in the twenty first century in this way **"curriculum and instruction must change from an emphasis on isolated facts, skills and coverage to a focus on integrated content, on the application of skills, and on the development of conceptual understanding."** Every idea that has led to the improvement or the advancement of civilization has been the product of creative thinking (McCann, 1985)

2.1 .6 Characteristics of Creative Students

Creative gifted students are divergent thinkers. Divergent thinking can be defined as being able to study a problem and develop many solutions or alternatives (Ingram & Todd, 1983). Creative thinkers often challenge the patience and adaptability of the teacher. Brainstorming is a

creative thinking activity where people sharing ideas as fast as they can. Some characteristics of creative thinkers are a preference for original and unusual responses, task committed, high achievement in adulthood, great imaginations, and highly independent. Creative thinkers enhance their emotional state through their capacity for innovation. They prefer the original, unusual, and creative aspects of any subject (Lovecky, 1991). Their responses often reflect their fantasy and may not imitate the responses of others.

Eby & Smutny – cited in Donnell (2004) - added that many creative thinkers like to find every thing on a topic before moving to a different one. They are not as motivated by rewards that schools offer as they are in the rewards they get when make something happen on their own. Creative thinkers are good questioners, they are more interested in questions than answers, they do not settle for short answers because they want to know why and have their questions fully explored, they are always analyzing new situations, searching for complexity, making connections, speculating, looking for evidence, and searching for links using prior knowledge. Creative thinkers can apply logic in order to arrive at a solution because they see unapparent possibilities. Most creative students are full of unusual and original ideas and have a good sense of humor with the ability to tell stories using their wild imaginations. They have wide interests and like to participate in many creative and unusual hobbies, projects, and activities. Creative students are also highly curious and are interested in new topics, learning new skills, and seeing how things work. They like to take things apart to see what is inside and ask many questions about every thing even those that are difficult for adults to answer. They are more interested in transforming than consuming knowledge, so they can manipulate what they know and create something new.

Torrance – cited in Donnell (2004) – stated that the creative gifted child usually experiences the problems of adolescence earlier than their peers. They are self- generators which may result in problems with their peers in adolescence. Creative gifted adolescents spend more time alone than their average peers in order to work on their special projects. This social isolation is not a good way to be part of their peer group, but many creative adolescents do not view this as negative because they need time to be creative (Neihart, Reis, Robinson & Moon,2002).

Adair (2004) summarized the obstacles of creative thinking as negativity in individuals and in teams; focusing on the negative aspects of problem as opposed to using the energy to seek opportunities for a solution, fear of failure; a fear of appearing foolish in front of colleagues, one right answer; the analytical mind is searching for one right answer, while the creative thinking expects a possible answers, evaluating too quickly by saying,' That won't work', or 'that's silly'. The analytical thinker evaluating

a new idea with thinking of the idea, while in creative thinking wild or silly ideas have the curious ability of leading the thinker into useful ideas, and lack of quality thinking time and experiences to draw from being over-stressed can make it difficult to think objectively and inhibits the natural thinking process.

2.2 Review of Related Literature

According to the researcher's best knowledge and after examining much research in the area of creative thinking, the researcher found out that most of the research is conducted to explore the development of creative thinking through different instructional methods and strategies or through training programmes. The researcher reviewed some of the most related studies to the topic of this study but she found out that there were no any previous research using creative thinking skills for teaching reading comprehension, and she found that most of these studies investigated the effect of creative thinking on students' achievement in science subjects. There are a few studies which investigated the effect of creative thinking skills on the students' achievements in literary (non- scientific) subjects.

Bani Yassen (2005) studied the effect of teaching creative thinking skills through Arabic language on achievement and creative abilities for third grade primary students in Amman. The population of the study consisted of all third grade primary male students in second term of 2004/2005; the sample of the study was the same population. The researcher used the Torrance Test of creative Thinking Form A, a training program that developed of Arabic language course, and an achievement test in Arabic language. The results of the study showed that there were significant differences between achievement means and performance means of the experimental group that was exposed to training program.

Clifford (2005) assessed the use of creative thinking and problems skills (flexibility, fluency, originality, elaboration, resistance to premature closure, and synthesis) and generic influence on learning traits (cognitive, synthesis, emotional, social physical and sensory) in clinical reasoning in physician assistant students. The sample consisted of thirty physician assistant students from the Drexel University physician Assistant Program. The researcher conducted a grounded – theory and collected data using quantitative and qualitative methods. The findings in the study concluded that physician assistant students are using creative problem solving traits in clinical reasoning. Fluency, synthesis, and resistance to premature closure are the most prevalent constructs of creativity in assessing clinical reasoning in physician assistant students. In addition, the findings concluded that physician assistants are using generic influence on learning in clinical reasoning in the Reisman's Generic Influences on Learning Instrument. Also, the findings provided physician assistant educators with

tools necessary to better understand the clinical reasoning process in physician assistant students and to design a new standard for physician assistant curriculum.

Hija (2004) investigated the effects of divergent (creative) production activities with math inquiry and think aloud strategy of students with math difficulty. This research also investigated the relationship between the interventions and creativity scores by employing pretest and posttest design as measured by the Torrance Tests of Creative Thinking (TTCT).the results of the study concluded that 5th grade students with math difficulty improved both think aloud and math inquiry scores based on visual/ statistical inspection of Means+ Trend differences analysis. It was found that only math inquiry intervention was effective to a mild degree for three out of four participants. Fluency and flexibility scores increased as a result of divergent production activities.

Awadi (2003) investigated the effect of applying creative thinking techniques in developing students' ability to learn English as a foreign language. The population of the study consisted of all the 3rd secondary commercial students in Albahreen , the sample is the same of the population, the researcher used pre- post test including 12 items. The results of the study supported the claim that creative thinking approaches develop students' performance in learning English as a foreign language.

Bsharh (2003) investigated the effect of training program for higher order thinking skills on developing critical and creative thinking of tenth grade students in Jordan. The sample of the study consisted of (68) students assigned into two groups; an experimental (34) students, and a control group (34) students. The results of the study showed that there was a statistical significant effect of the training program on developing critical and creative thinking among tenth graders. Also there were significant differences on the post scores of creative thinking based on students' achievement, but there were no statistical significant differences on the post score of creative thinking based on the interaction between achievement and method.

As stated earlier, there are no local studies have been conducted to investigate the effect of using creative thinking skills on the development of reading comprehension, the researcher accepted studies on reading comprehension because of their close relation to the purpose of this study and the use of creative thinking skills is embedded. As Lovecky (1991) mentioned that brainstorming is a creative thinking technique that stimulates the students' ideas, activates their minds and encourages them to generate as many unusual ideas, the researcher accepted the study was conducted by AL-Qudah, AL-Kataybeh & Mohaidat (2002), the study aimed at investigating the impact of brainstorming on the development of reading comprehension. The population of the study consisted of all ninth

graders in Al- Karak District of academic year 1998/1999, totaling(1090). Four ninth grade sections were deliberately selected as the sample for the study: two sections were assigned as experimental group and the other two schools were assigned as control group. The researchers administrated two tests: a comprehension of the reading passages, and a cloze test to measure students' language proficiency. An analysis of covariance was used to find out if there was a significant difference between the achievement of the experimental group and the control group(α= 0.05). The findings of the study show that there is a significant difference between the performance of the experimental group and that of the control group on the comprehension test.

Ishtayeh(2002) investigated the effect of using the creative thinking skills in teaching the Arabic Language for sixth basic grade pupils in the district of Nablus and their impact on achievement and solving language problems.The sample of the study consisted of(608)male and female pupils of sixth basic grade in the District of Nablus during the first semester 2001/2002.The researcher prepared four tests that include the creative thinking skills : fluency, flexibility, originality, and elaboration. He also developed a testing instrument. The results of the study showed that there were significant differences between the means of sixth basic grade pupils achievement due to the use of creative thinking skills in teaching.

Overton (2002) investigated the effects of thinking skills instruction on academic achievement and on the development of critical and creative thinking skills of 2^{nd}, 4^{th} and 6^{th} grade students in English Language. The sample consisted of 82 students with 41in each of the control and experimental groups. The students in both groups were pre tested using Criterion Referenced Tests of Talents (CRT), Form A. The Stanford Achievement Test (SAT), Form K. The results of the study showed that thinking skills instruction in the 4^{th}, 6^{th} grades made a significant difference in the development of creative and critical thinking skills, also the results indicated that thinking skills instruction had a significant impact on the academic achievement of students in 4^{th} grade in areas of language.

Gonzales (2000) studied the effectiveness of language experience approach in improving creative writing skills of limited and non- English proficient students in an 'Author Center Program' of a border region school District in Southern California. in which the use of creative thinking skills was embedded The sample consisted of six fourth grade classes from two schools in the Calexico Unified School District, three classes used as experimental group and three as control group, each group was comprised of 90 students. Statistical treatment of scores from the Holistic Measurement Test (HMT) utilized the t-test of mean scores. Utilization of the author center program in developing writing skills resulted in higher

creative writing scores for the experimental group than those of the control group of fourth graders.

Naumann (1999) studied the effect of creative teaching of reading comprehension of English to promote children's creative thinking among a sample of teachers participating in graduate course work at one institutions, the researcher examined the theory and research in the area of creativity to form a conceptional foundation on which to base the investigation, the researcher conducted experts in the field of reading and creativity to contribute definitions of creative teaching. Also the researcher used the Critical Incident Technique to assess the presence of the twenty creative teaching behavior among a sample of 75 students with the graduate school of a large urban university in New England. The results of the study were quantified for all subjects within the subgroups of the variables. From these findings critical points of intervention were suggested for increasing the creative behaviors of teachers of reading.

Eleanor (1999) examined the effect of creative thinking materials and the development of students' creative thinking skills in reading English stories. The sample of the study consisted of 267 fourth graders. Creative reading materials were designed by the researcher to teach the creative thinking skills of fluency, flexibility and originality within the text of the story. All students were pre and posttested on two subtests of Torrance Tests of Creative Thinking (TTCT). The results of the study demonstrated that the experimental creative reading materials were effective in developing students' creative thinking skills, the study also indicated that a teacher trained in creativity with high creative attitude and who used creativity training materials can be quite influential in affecting a child's creative thinking skills.

Moorman and Ram (1994) constructed a research to study the integration between creativity and reading, they built on results from psychology artificial intelligence and education in order to produce a functional theory of the complete reading process. They described the set of tasks necessary for reading to be performed. Within this, they have developed a theory of creative reading. The theory is implemented in the ISAAC (Integrated Story Analysis And Creativity) system, a reading system which reads science fiction stories. They concluded that by making extensive use of the knowledge which exist within a story and by relying on a close interaction between the various reading tasks, their theory is capable of modeling the reading process to a degree not before possible also the theory explained pleasure reading in addition to more structured forms of reading, also they provided a frame work in which to analyze previous systems. Their theory in corporated a general process of creative understanding as an integral part of reading.

Alrwais (1994) conducted a study which aimed to investigate the relationship between mathematics achievement and creative thinking for middle school students in Alkarj district. A random sample of 172 students had been chosen. The mathematics achievement was measured by a test that was prepared by the researcher and the test validity and reliability was tested while creative thinking was measured by Torrance's Tests for creative thinking form (B). The result was a positive correlation between mathematics achievement and creative thinking. The study recommended that in order to classify the student's ability and aptitude; math achievement should not be the only factor, but rather the school.

Rose (1990) conducted a study which aimed to develop and test an instructional unit designed to teach creative problem solving skills to junior high school students enrolled in general technology education. Students' creativity was pre and post tested using Torrance Tests of Creative Thinking. The sample of the study composed of 43 subjects. Findings on increased creativity were inconclusive. A small increase in student scores overall may have been the result of participations in the unit.

Crymes (1986) examined the effects of the SEEDS model on reading comprehension performance and attitude toward reading of students at three different reading levels in regular classroom. The sample of the study consisted of three third classrooms from two schools, one designated as the experimental school and the other as the comparison school. Both were pretested and posttested for gain in reading performance on the Metropolitan Reading Survey Test and attitude toward reading on the Attitude Toward Reading Inventory. Treatment consisted of six literature units integrating creative and critical thinking skills into reading instruction. An independent t-test was used to test the differences in means between the experimental and comparison schools on gain in reading performance and attitude toward reading. The results of the study indicated that there may be a positive relationship between the acquisition of creative and critical thinking skills and achievement in reading and there was an indication of a positive relationship between attitude toward reading ,the number of books read and creative thinking.

Bishr (1981) studied the growth of mathematical thinking and creative thinking of students through the secondary cycle, and investigated the relationship between mathematical thinking , creative thinking and achievement in mathematics. The sample of the study consisted of (1160) male and female students from the 1st, 2nd and 3rd secondary classes and the scientific and literary study program in Sana'a and Taiz of the scholastic year 1987/1988. the researcher used mathematical thinking instrument which was prepared by (Shatnawi and Abu- Zeineh,1982), after being modified, Cronbach Alpha formula was used to calculate the reliability coefficient of mathematical thinking test. Also the researcher used

Torrance Creative Thinking Tests , after being modified to fit the Jordanian setting, the creative thinking aspects were: fluency, flexibility and originality. Results of the study revealed that a growth of the mathematical thinking ability and of the creative thinking ability, results also, indicated that the correlation coefficient between the mathematical and creative thinking, the mathematical thinking and achievement in mathematics and between the creative thinking and achievement in mathematics were positive.

2.3 Summary

Through reviewing the related literature reviewed, one can see that no study was conducted studying the effect of creative thinking skills on the development of reading comprehension, where as, by studying the findings of the described above studies , it seems fairly convincing that the use of creative thinking has positive effect on teaching and learning process and it was helpful; it improved students' reading comprehension and develop their attitudes toward reading (AL-Qudah, AL-Kataybeh & Mohaidat ,2002;Crymes, 1986 and Moorman & Ram, 1994) , it improved their academic achievement in both literary (non- scientific) subjects and scientific ones (Bani yassin, 2005 ; Awadi, 2003; Ishtayeh, 2002; Hija, 2004; Al-rwais, 1994; Bishr, 1981). It is noticed that most of the studies (Naumann, 1999;Overton,2002 and Gonzales,2000) dealt with the effect of reading, the academic achievement, language experience on the development of creative thinking among learners. But, there was only one study Bsharah, 2003 that dealt with the effect of a training program on creative thinking skills in English language. But, only (Clifford, 2005) and (Rose, 1990) studied the use of creative thinking and creative problem solving skills in teaching clinical reasoning in physician assistant and general technology.

So, through the literature reviewed, it is clear that more research is needed to investigate the effect of using creative thinking skills on the students' achievement in English language to face the problems that we may encounter in teaching English language especially teaching of reading comprehension. Therefore, this study tries to highlight the effect of using creative thinking skills on the development of reading comprehension in English language.

Chapter Three
Design and Methodology

This chapter includes a detailed description of the population of the study, the sample, the design, the instructional materials, the instrument, as well as validity and reliability of the instrument, the procedures, and the statistical analysis.

3 . 1 Population of the Study

The population of this study consisted of all tenth grade female students in Southern Al-Mazar Directorate of Education during the first semester 2009/2010 which are estimated as (650) students. They formed (28) sections .

3 . 2 Sample of the Study

The sample of the study consisted of (53) students who formed two sections of the tenth grade in AL-Hussaineih Secondary School for Girls. The procedures used in the selection of the sample were as follows:

1- One school out of 17 female schools which have tenth grade in Southern AL-Mazar Directorate of Education was selected randomly to conduct the study .
2- The selected school has only two sections, one section of 26 students was selected randomly to be an experimental group which was taught the reading comprehension texts by using creative thinking skills (fluency, flexibility, originality) and the other section of 27 students was selected randomly to be the control group which was taught the same reading comprehension texts using the traditional method.

3 . 3 Design of the Study

This study followed quasi-experimental research design. The study included an independent variable (the teaching method), which consisted of two levels:

a- Creative Thinking Skills.
b- Traditional Method.

However, the study included the dependent variable which is the reading comprehension level of the students and their linguistic levels (as a control variable) based on their performance on the post test.

3 . 4 The Instructional Material

The instructional material of the study consisted of:

1- Three reading comprehension texts which were chosen from the English text Book Action Pack 10 by the MOE Haines (2008) assigned for the

tenth grade (appendix I). The researcher planned them according to creative thinking skills. The lesson plan was validated by a jury of English language specialists; two experienced university professors in TEFL, two English language supervisors, five experienced English language teachers. The jury was asked to validate the lesson plan in terms of its objectives and activities appropriateness and clarity to tenth grade students' level. The jury was not suggested to do any change thus, the lesson plan was still the same (appendix IV) and (appendix V).

2- Activities 1-3(Ask – and – Guess) of Torrance Tests of Creative Thinking by Torrance(1993) to stimulate and encourage students' creative thinking (appendix II).

3- Activities were prepared by the researcher on the three texts including questions about fluency, flexibility and originality (appendix IV).

3 . 5 Instrument of the Study

A reading comprehension test was constructed by the researcher to assess the students' level of reading comprehension before and after the experiment (appendix VI). The test also measures the basic concepts and skills considered in Iowa reading comprehension test of basic skills are: decoding, vocabulary and comprehension. Table(1) shows the reading comprehension skills objectives of The Iowa test employed in this study (Gronlund, 1981, p.269)

Table (1)

Reading comprehension skill objectives of Iowa test

F Facts: To recognize and understand stated factual details and relationships (literal meaning).
F1 : Description: to understand factual details related to description of people, places, objects, and events.
F2: Categorization: To understand functional details related to classification.
F3: Relationships: To understand functional relationships, time, and sequence.
F4: Contextual Meaning: To deduce the meaning of words or phrases from context.
I Inference: to infer underlying relationships (interpretative meaning).
I1 Cause and effect: To understand cause, effect, concomitance and interaction.
I2 Draw conclusions: to draw conclusions from information and relationships.
I3 Traits and feelings: To infer trait, feeling, and emotion and characters.
I4: Motives: To show reasons for the actions of characters.
G Generalization: To develop generalizations from the selections (Evaluative Meaning)
G1 Main Idea: To recognize the main idea or topic of a paragraph or selection.
G2 Organization: To understand the organization of a paragraph or selection.
G3 Application: To apply information through generalization or prediction.
G4 Viewpoint: To recognize the author's viewpoint, attitude, or bias.

(Gronlund, 1981, p. 269)

The test of this study consisted of six questions; the following steps were used in the construction of the test:

1- The test items were written to measure the reading comprehension skill objectives mentioned in table(2). It included questions about the concepts and facts, vocabulary items, inferences and generalizations.
2- Because Bloom (1964) suggested the questions of the test should be suited to the students' different levels of thinking which can be summed up as. recognition, deduction, analysis, and synthesis, while recognition and deduction are lower order, analysis and synthesis are higher – order skills of thinking of reading so, the researcher took into her account Bloom's (1964) classification of objectives; knowledge, comprehension, application, analysis, synthesis and evaluation when writing the questions of the test
3- The test included the following six types of questions.
   A- Information questions to test knowledge, inferences and generalizations and test students' thinking and predictions.
   B- True or False questions to test recognition of certain concepts and facts in the text.
   C- Completing the statements to test facts, inferences and generalization.
   D- Multiple choice items to measure knowledge getting and inferences, and application.
   E- Vocabulary question items requiring the learner to provide synonymous or opposite meaning of some words.
   F- Reference questions to find what certain pronouns refer to in the text.

3. 5.1 Test Validity

To assess the validity of the test, it was given to a jury of experts; two EFL professors, two linguists of the English Department and two professors in measurement and Evaluation, two supervisors of EFL in Southern AL-Mazar Directorate of Education and four experienced EFL teachers in Southern Al-Mazar Directorate of Education. They were asked to validate the content of the test concerning its instructions and suitability to the objectives of the study. Some modifications of structure, rewriting the sentences, and choice of words were recommended such as in question one: A- What does the text mainly talk about?

B- Where in the text does the writer mention that the number of players on the team of the basketball was changed?

C- what is the best title of the text?

After conducting the modifications suggested by the jury, the items of question number one became as the following:

A- What is the main idea in the text?
B- Write down the sentence which indicates that the number of players on the team of the basketball was changed?
C- Suggest a suitable title for the text?

3 .5 .2 Test Reliability

To ascertain the reliability of the test, it was conducted on a sample which was excluded of the sample of the study and it consisted of (15) tenth grade students to check the intelligibility of the test items, the clarity of the directions of the test, and the suitability of the test for the level of the students, then three weeks later the same test was implemented again. Reliability coefficient of the two scores of test was computed by using Pearson correlation coefficient which was appointed as (0.95)and this value was appropriate to research purposes.KR 20, also, was computed as indicator to internal consistency of test items which estimated as(0.80). This is an educationally accepted score to conduct research.

3 .6 The Procedures of the Study

1- The researcher took permission from Southern Al-Mazar Directorate of Education to conduct this study at the two female tenth grade sections in Al-Hussaineih Secondary School for Girls.
2- The researcher made all the arrangements with the principals in Southern AL-Mazar Directorate of Education ,with the headmistress of AL-Hussaineih Secondary School for Girls to conduct the study .
3- One section was chosen randomly to be an experimental group which was taught the three reading comprehension texts using the creative thinking skills(fluency, flexibility, and originality) and the other section to be the control group which was taught the same texts using the traditional method.
4- A pre-test was given to the two groups in order to check the level and the equivalence of the students before the experiments. (appendix VI).
5- In the first week the researcher gave students the activities 1-3 (Ask - and - Guess) of Torrance Tests of Creative Thinking by Torrance (1993) to see how good students are at asking questions to find out things that they do not know and in making guesses about possible causes and consequences of happenings 15 minutes for each activity. (appendix II) .
6- The researcher pointed the three texts to the students to be prepared before the class.
7- The experimental group was taught the three reading texts obtained from Action Pack 10 by Simon Haines using creative thinking skills for four weeks in the first semester in the academic year 2009/2010.

(appendix IV). However, teaching the control group through the traditional method (appendix V)

8- By the end of the four weeks, the two groups were tested again at the end of the experiment by means of a post-test which was originally used as a pre-test to check the effect of using creative thinking skills on the development of reading comprehension and their linguistic level in the reading comprehension (appendix V). .

9- Regular school records of students assessment used to divide the experimental group students into three groups according to their linguistics levels (high , intermediate ,low) according to the Jordanian National tests (MOE, 2004).as the following below 60% is low achievement, from 60% - 79% is an intermediate achievement and above 79% is high achievement.

10- After applying the study, collecting data and analyzing these data using the statistical package for social sciences (SPSS), the researcher inferred the answers of the questions of the study

3.7 Statistical Analyses

To answer the research questions, the researcher followed the following procedures:

1- A t-test of the independent groups was conducted to test the equivalence of the two groups; (the control and the experimental group).

2- Descriptive statistics were used to describe properties of the variables(dependent and independent variables) in terms of means and standard deviations to analyze the results of the post-test of the two groups .

3- Depending on the results of t-test, the analysis of Covariance (ANCOVA) was used to test the significance of the difference between the post- test means for both groups

4- To answer the second question of the study the analysis of Covariance (ANCOVA) was used to test the significance of the difference between the three levels (high, intermediate, Low) and Scheffe for Multiple comparisons were used

Chapter Four
Results of the study, Discussion and Recommendations

4 . 1 Results of the Study

This chapter presents the findings of the study through answering the questions of the study and the discussions of the findings of the study accordingly, the researcher carried out statistical analysis to examine the equivalence of both control and experimental groups and calculated the means and standard deviations for their scores in the pre-test which was constructed by the researcher at the beginning of the first semester of the academic year 2009/2010. Table (2) shows the Means and Standard deviation of the control and experimental groups on the pre-test.

Table (2)
Means and standard deviations of the control and experimental groups on the pre-test

Group	Number	Means	Std. Deviation
Control	27	13.74	5.70
Experimental	26	16.03	8.31

Table 2 shows that, there are slight differences between the two means of both groups (control and experimental) in favour of experimental group, Mean score was (16.03) for the experimental group. While mean score was (13.74)for the control group. In order to sort out this difference in terms of statistical significance, t-test was employed . The t-test results, however, are shown below in Table.(3).

Table (3)
t-test for equality of means

	t	DF	Sig. (2-tailed)
Total Pre-test	1.177	51	.245

Table (3) displays that there is no statistical significant difference between the achievement of both groups on the pre-test at ($\alpha \leq 0.05$). Accordingly, T- value (1.177) which is greater than 0.05 (the significance level) shows that both of the groups are equivalent.

Results Related to the First Question :" What is the effect of creative thinking skills on the development of reading comprehension of tenth grade students?"

The means and the standard deviation of the experimental and control groups' achievement on the post-test, are shown in Table (4)

Table (4)
Means and Standard Deviations of the Experimental and Control Groups' Results on the Post- Test

Group	**Method**	**Mean**	**Std. Deviation**	**Std. Error Mean**	**Number**
Control	Traditional	15.29	5.96	1.14	27
Experimental	Creative Thinking Skills	26.51	5.26	1.03	26

From Table 4, it is clear that the experimental group which studied the three selected reading texts through using creative thinking skills(fluency, flexibility, originality) achieved higher scores in the post test than the control group which studied the same texts according to the traditional method. Mean score was (26.51) and standard deviation was (5.26) for the experimental group. While mean score was (15.29) and standard deviation was (5.96) for the control group.

After describing the variables, it was essential to find out whether or not these differences are significant. Thus, an Analysis of Covariance (ANCOVA) was carried out. The results of the analysis are shown in Table. (5)

Table (5)
ANCOVA for students' reading achievement on post- test

Source of Variance	Type III Sum of Squares	Df.	Means of Squares	F	Sig.
Pretest	831.54	1	831.54	52.97	.000
Group	1268.17	1	1268.17	80.79	.000
Error	784.82	50	15.69		
Total	2884.54	53			

R Squared = .761 (Adjusted R Squared= .752)
Dependent Variable : Posttest

As indicated in Table (5), there are statistically significant differences of the groups' results on the post-test due to the variable of the group (control and experimental) where (F = 80.79) between the two groups in

terms of reading comprehension achievement. The Table , also, illustrates that the significance of (F =0.000) which is less than the level of the significance ($\alpha \leq 0.05$) and indicative as well. The difference was in favor of the group who studied the reading texts through using creative thinking skills. Referring to the means in Table No.(4), it is clear that the means of experimental group was(26.51) but, the means of control group was(15.29) which indicated that there is an effect for using creative thinking skills (fluency, flexibility, originality) on the development of reading comprehension.

Results Related to the Second Question: "Is there any statistically significant effect ($\alpha \leq 0.05$) of the use of creative thinking skills on the tenth grade students' linguistic levels (high, intermediate and low) in reading comprehension?"

To answer this question, the researcher referred to formal school records of students assessment to divide the experimental group students into three groups according to their linguistics levels (high , intermediate ,low). The researcher classified the students as the following: (below 60% is low achievement , from 60% - 79% is an intermediate achievement and above 79% is a high achievement) according the criteria of the Jordanian National tests (MOE,2004)

The researcher found out the mean scores and standard deviations of the experimental group on the pre-test and post-test according to their linguistic levels (high, intermediate and low) in the reading comprehension. Table (6) shows that:

Table (6)

Means and standard deviations of experimental group on the pre- test and post-test according their linguistic levels (high, intermediate and low)

		Pre- test		Post test	
Groups	N	Mean	Std. Deviation	Mean	Std. Deviation
high	10	21.30	8.12	31.00	2.90
intermediate	8	15.00	6.41	26.25	2.05
Low	8	10.50	6.71	22.50	5.97

As shown in Table (6) there are differences in the mean scores of the experimental group on the post-test according to their linguistic levels in the reading comprehension (high, intermediate and low). Mean score was (31.0) and standard deviation was (2.90) for the high level, while mean score was (26.25) and standard deviation was (2.05) for the intermediate

level and mean score was (22.50) and Standard deviation was (5.97) for the low level.

It was essential to find out whether or not these differences are statistically significant. Thus, an Analysis of Covariance (ANCOVA) was used, the results of the analysis are shown in Table (7):

Table (7)
ANCOVA Results for the experimental group on the post-test according their linguistic levels (high, intermediate and low)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
levels	115.290	2	57.645	4.29	.027*
Error	295.104	22	13.414		
Total	410.39	26			

a. R Squared = .567 (Adjusted R Squared = .508)

Table (7) shows that the results indicate that there were significant differences between the students who belong to the experimental group on the post-test due to their linguistic levels in the reading comprehension (high, intermediate and low) where (F = 4.29) which is statistically significant at the level of the significance ($\alpha \leq 0.05$) , this indicates that using creative thinking skills participate in developing the reading comprehension of female tenth grade students according to their linguistics levels (high, intermediate and low)

To find out whom these differences refer to, (Scheffe) for Multiple Comparisons was used. The results of the analysis are shown in Table (8).

Table(8)
(Scheffe) for Multiple Comparisons

(I) VAR00001	(J) VAR00001	Mean Difference (I-J)	Std. Error
high	intermediate	1.75	1.86
	low	5.50*	1.86
intermediate	high	-1.75	1.86
	low	3.75	1.96
low	high	-5.50	1.86
	intermediate	-3.75	1.96

As shown in table (8), the results indicate that there were statistically significant differences between the three levels (high, intermediate and low) due to the high level of the students which means that using creative

thinking skills was effective with the students of the high level. Also the results indicate that using creative thinking skills was more effective with students of the low level than students of intermediate level.

4. 2 Discussion of the Results

The results of this study revealed that there were statistically significant differences at ($\alpha \leq 0.05$) between students' performance in reading comprehension of English texts when two different methods of instruction are employed (using creative thinking skills (fluency, flexibility, originality) and the traditional method).

These results can be considered most encouraging. In connection with the use of creative thinking skills (fluency, flexibility, originality), the students in the experimental group showed significant development in their reading comprehension achievement in English as measured by the post-test scores on the reading comprehension achievement test which was prepared by the researcher. On the contrary, no such development in reading comprehension achievements were evident for the students in the control group that was taught by the traditional method. The mean scores of the experimental group was (16.03) whereas that of the control group was (13.74). That is, the positive difference in the mean scores of the experimental group and the noted reading comprehension developments appear to be a function of the use of the creative thinking skills (fluency, flexibility, originality).The possible explanation of the results is due to students' attitude and motivation; students of the experimental group had a positive attitude and high motivation toward using creative thinking skills for reading and analyzing English texts, because it was the first time ever they have used creative thinking as an instructional tool. The new instructional tool in reading (creative thinking skills) motivated students to be creative, imaginative, open-minded, more curious and often view themselves as having the ability to solve unusual problems. The same result is in line with the research results of (Crymes,(1986), he revealed that there may be a positive relationship between the acquisition of creative thinking skills and achievement in reading and there was an indication of positive relationship between attitude toward reading and creative thinking.

Also the findings of the study showed that there were statistically significant differences between the students of the experimental group on the post- test according to their linguistics levels (high, intermediate , low)due to the high level which means that using creative thinking skills was effective with the high level. The possible explanation of this result is students of high level have more extensive intellectual performance and experience in using the high thinking skills (synthesis, analysis, evaluation, application), in giving their opinions and new ideas and their aptitude to

interact with creative thinking and they are expected to be higher than students of intermediate and low levels, This can be attributed to the short duration of implementing creative thinking skills on students which was one month and this period not enough to show the differences among the intermediate level and low level. However longer duration may shows better findings. Moreover, the size of the experimental group number (26students) was small.

The results of this study are consistent with the findings of studies done by (Crymes, 1986), (Naumann, 1999), (Eleanor, 1999), and (Moorman and Ram, 1994) and (AL-Qudah, AL-Kataybeh & Mohaidat, 2002) who supported the idea of using creative thinking in teaching reading comprehension and the integration between reading and creative thinking. Studies done by (Bani Yassen, 2005), (Ishtayeh, 2002), (Overton, 2002), (Hija, 2004), (Alrwais, 1994), (Bishr, 1981) and (Awadi, 2003) showed that there were significant differences between the students' achievement due to the use of creative thinking skills in teaching scientific and non- scientific subjects.

4 . 3 Recommendations

In light of the results of the study, the following recommendations were proposed for educators, teachers, and researchers:

1- Other studies under different conditions, with longer periods of treatment and more reading passages and on different topics are recommended.
2- Holding seminars and workshops to train Jordanian teachers on how to implement the creative thinking with its skills in the reading lessons.
3- Future researches are recommended to investigate the effect of using creative thinking skills on writing skill.
4- Similar studies are recommended to be conducted on females and males to find if they give the same positive results.

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Appendixes (I)

Reading Comprehension texts as cited in Action Pack 10 By Simon Haines (page, 39, 51, 69)

Text One

Fast forward to the future of games (page39)

Technology experts are predicting that the computer games of the future will be a lot more difficult both for games producers and for players. In particular, they say, games will look much more realistic, and computer-controlled characters will be more believable. This means that keen computer games players will almost certainly spend more time playing games than they do at the moment. New technology will enable companies to create more complex games. The graphics of computer games will definitely improve, but this may cause problems. Firstly, game studio will have to employ hundreds of animators to produce enough creatures to fill huge computer worlds. Secondly, designers may spend too much time on visual effects and forget about the quality of the games themselves.

One computer expert said: ' When you move away from games where characters just fight each other, speaking will become much more important. We will have to make our games characters more intelligent; in the end they will even have conversations with each other.'

Another change that seems probable is the increase in people playing the same game on the mobile phone networks. Many of these games are free at the moment, so companies don't earn much money from them. Some people are predicting that in future as multi-player games become more and more popular, players will have to pay for every episode.

Text Two
Shawmari Reserve (page 51)

The Shawmari Reserve opened in 1975. The main purpose of the reserve is to protect rare species of wildlife in the Middle East in danger from hunting and habitat destruction, and to increase their numbers. It is also an important educational centre for local people, children and tourists. The centre includes a museum and breeding enclosures where the animals can be seen very close, like in a zoo. This is very popular with young people and is a wonderful place for school outings.

One of the most important projects is the Arabian Oryx breeding programme. The oryx is a natural inhabitant of the Arabian Peninsula, but the last oryx in the wild was killed in Oman in 1972. however, 10 years earlier, two wildlife organizations had taken nine oryx from different countries and established a World Survival Herd.

This herd grew, and in 1978 the Shawmari Reserve brought eleven oryx to Jordan. Because of its breeding program, there are now over 200 in the reserve. In 2002, some oryx were taken to an enclosure in Wadi Rum. This is the first step towards reintroducing the Arabian Oryx into its natural home.

Other endangered animals at the Shawmari Reserve include ostriches, gazelles and onagers. There are also a lot of desert plants, including artiplex, a natural food source for the onager and Oryx. To see the animals, visitors can enter the Oryx enclosure on RSCN guided safari trips. The animals roam freely, so you have to look very carefully! The observation tower offers anther exciting opportunity to watch birds and wildlife.

Text Three
Future Shock (page 69)

Our grandparents thought they were lucky because they could travel by car and they could see films at the cinema. Now, we think we're very lucky because we have machines that can do the jobs we hate, like washing up or cooking' we have computers that can help us to communicate with people instantly; we have cars with computers that can tell us how to get to where we are going; and we have machines which can keep our houses and offices cool when the weather is hot.

But in just a few years these ' modern' inventions will seem old- fashioned compared to things that scientists are currently working on. Here are a few of the ideas they are developing.

1- within a few years, we will all be able to watch 3D television without special glasses. We will have more spare time because robots could be doing almost any job in our homes, including cleaning, washing, gardening and mail delivery.
2- Within ten years, researchers will have developed tiny robots which we can swallow. These will be able to travel through our body and repair organs that are not working properly.
3- In the next ten years, we will be able to buy ' intelligent' or ' smart' clothes which can control our temperature, keeping us cool in the summer and warm in the winter.
   By 2015 we could see the end of traffic jams and road accidents: cars will drive themselves along ' smart roads'. Some people predict that we will even be able to buy flying cars.
4- mobile phones will continue to get smaller and become more sophisticated. We may be able to use our phones to pay for things we buy in shops. We will simply pass our phone over a electronic reader and money will be taken from our bank accounts.
   We will soon be able to wear' active contact lenses' which display our emails and Internet web-pages. According

Appendix (II)
Activities 1-3 (Ask and Guess) of Torrance Tests of Creative Thinking (TTCT)

Appendix (III)
Activities on the creative thinking skills (Fluency, flexibility, originality)

Activities on the creative thinking skills (Fluency, flexibility, originality)

Text One
(Fast forward to the future of games)

Activity (1) (25minutes)
Fluency

1- Look at the Pictures (SB. Page 38) and write as many ideas as you can to express the idea / the theme of the pictures:
1- ---
2- --
3- --
4- --
5- --
6- --

2- skim the text to list as many words as you can that relate to the people who deal with computer games :
1- ---
2- --
3- --
4- --
5- --
6- --

3- skim the text to think of several possible titles to the text .
1- --
2- --
3- --
4- --
5- --
6- --

4- Come up with ideas for changing computer games to be different from the games we play now.
1- ---
2- --
3- --
4- --

Activity (2) (25 minutes)
Flexibility

1- Think of several possible ways to classify computer games into different categories:

1- --
2- ---
3- ---
4- ---
5- ---
6- ---

2- Suppose you have a project to design a computer game and you believe it won't successful unless you have got the support of many people , think of as many alternatives and different ideas to persuade the others in your project.

1- --
2- ---
3- ---
4- ---
5- ---
6- ---
7- ---
8- ---
9- ---

Activity (3) (25 minutes)
Originality

1- Suppose you are a game designer and you want to design a new computer game, think of new and unfamiliar characteristics that should be found in this computer game.

1- --
2- --
3- --
4- --
5- --
6- --

2- Think and suggest new alternatives to improve the quality of computer games for young people.

1- --
2- --
3- --
4- --
5- --
6- --

Activities on the creative thinking skills (Fluency, flexibility, originality)

Text Two
A special zoo

Fluency (25 minutes)

1- Ask as many questions as you can about reserves in Jordan.
1- ---
2- ---
3- ---
4- ---
5- ---

2- skim the text to think of several possible titles to the text :
1- ---
2- ---
3- ---
4- ---
5- ---
6- ---

3- Skim the text and list as many animals that need to be protected.
1- ---
2- ---
3- ---
4- ---
5- ---
6 - ---

4- Suggest as many ways in which animals are important in our life.
1- ---
2- ---
3- ---
4- ---
5- ---
6- ---
7- ---

Activity (2)
Flexibility (25 minutes)

1- Imagine that you have a plan to protect the wildlife . think of new ways in which you can persuade some one in authority about your plan.

1- ---
2- ---
3- ---
4- ---
5- ---
6- ---
7- ---

2- Think of new and unfamiliar ways to classify animals .

1- ---
2- ---
3- ---
4- ---
5- ---
6- ---

Activity (3)
Originality (25 minutes)

1- Think of what will happen if all animals in the world are extinct or died ?

1- ---
2- ---
3- ---
4- ---
5- ---
6- ---

2- Suggest new and unusual ways to protect wildlife from being extinct?

1- ---
2- ---
3- ---
4- ---
5- ---
6- ---

Activities on the creative thinking skills (Fluency, flexibility, originality)

Text Three
Future Shock

Fluency (25 minutes)

1- Scan the text and write a list of devices that will improve our life easier.

1- ---
2- ---
3- ---
4- ---
5- ---
6- ---

2- Skim the text to think of several possible titles to the text
1- --
2- ---
3- ---
4- ---
5- ---
6- ---

3- Think and make a list of what human beings can do now that couldn't do 100 years ago.

1- --
2- ---
3- ---
4- ---
5- ---
6- ---

Activity (2)
Flexibility (25 minutes)

1- Think of different and new uses of technology in Health and medicine .
1- ---
2- --
3- --
4- --
5- --
6- --

2- Skim the text carefully and suggest the main ideas of the paragraphs (1-4)
1- ---
2- --
3- --
4- --
5- --
6- --

Activity (3)
Originality (25 minutes)

1- Think of what would people do if computers started to act by themselves? Explain.

1- ---
2- ---
3- ---
4- ---
5- ---
6- ---

2- Think of what could happen if all the computers in the world stopped working at the same time.

1- ---
2- ---
3- ---
4- ---
5- ---
6- ---

Appendix (IV)
(Lesson plan for teaching the experimental group using creative thinking skills)

Lesson Plan / experimental group

Class/Level: 10th grade — Unit Title: Computer games

Number of classes: 5 classes — Lesson Title: text1 / fast forward to the future games

Previous Learning: some vocabulary and information about computer

Specific outcomes	Materials/ sources	Procedures	Time
1- To talk about and predict the future of the computer games 2- To skim the text to list and identify the new words . 3- a- To infer the main idea of the text. b- To analyze the text to answer the comprehension questions a- To infer the main idea of the text. b- To analyze the text to answer the comprehension questions 4- To come up with new ideas for improving the quality of computer games. 5- To use the future tense to express their ideas.	Magazine advertisement for computer games - English – English Dictionaries -Student's Book pages 38-39 - Work Book pages 22-23	1- T. uses pictures and magazine advertisement for computer games and puts the students in pairs to discuss, write as many ideas and predict about computer games. T. asks Ss general questions about their knowledge of computer games to stimulate their prior knowledge. 2- T. puts Ss in small groups to skim the text and list as many words and asks them to find their meanings using dictionaries. T puts Ss in small groups to skim the text and list as many words and asks them to find their meanings using dictionaries. 3- Ss skim the text to discuss the main idea of the text and answer the comprehension questions . 4-1-T. puts Ss in small groups and asks them to think and suppose examples and models for changing computer games, then discuss their ideas with the class. 2- Ss work in pairs to classify computer games into categories. 3- T. asks Ss to design a computer game and make an attractive advertisement to show its new and creative characteristics. 5 - Ss do the prepared activities (appendix C) in small groups.	10 minutes 5 minutes 10 minutes 20 minutes 25minutes each activity

Lesson Plan / experimental group

Class/Level: 10th grade — Unit Title: A special zoo

Number of classes: 5 classes — Lesson Title: text 2 / A Shawmari Reserve

Previous Learning: some information about animal reserves in Jordan, names and kinds of animals.

Specific outcomes	Materials / resources	Procedures	Time
1-To predict the theme of the lesson and the importance of the animals in the modern world.	-pictures of animals and reserves -English – English Dictionaries	1- T. uses pictures of some animals and reserves then asks Ss to name them and predict the theme of the lesson T. asks Ss general questions about their experiences e.g have you ever been to a zoo? Do you have a pet? How important do you think animals are in the modern world?	10 minutes
2- To skim the text to list and identify the new words .	Student's Book pages 50-51	2- T. puts Ss in small groups to skim the text and list as many words and asks them to find their meanings using dictionaries.	5 minutes
3- a- To infer the main idea and the best title of the text . b- To analyze the text to answer the comprehension questions.	- Work Book pages 32-33	3- Ss skim the text to discuss the main idea of the text and answer the comprehension questions(inferential, referential ..)	10 minutes
4- To suggest new ways to protect wild animals and how to persuade the principals		4-1-T. puts Ss in small groups and asks them to think of how important it is for countries to protect wild animals then discuss their ideas with the class. 2- Ss work in pairs to think of new ways to classify animals. 3- T. asks Ss to write what will happen if all animals in the world are extinct.	10 minutes
5- To find out countable ,uncountable nouns and quantity words from the text.		5- Ss do the prepared activities (appendix C) in small groups. 6- T. asks Ss to surf the internet and write a report about the importance of the wild animals in the modern world.	25minutes each activity

Lesson Plan / experimental group

Class/Level: 10th grade Unit Title: The power of technology

Number of classes: 5 classes Lesson Title: text 3 / Future shock

Previous Learning: names of some modern technology and inventions and their benefits in our life.

Specific outcomes	Materials/ resources	Procedures	Time
1- To predict the theme of the lesson and the benefits of the modern technology in our life.	* pictures of modern technology e.g cars, microwaves, washing machines, DVD players… * English – English Dictionaries -Student's Book pages 68-69 * Work Book pages 45-46	1- T. uses pictures of modern technology then asks Ss to name them and predict the theme of the lesson T. asks Ss general questions about the advantages and disadvantages of modern technology in their life.	10 minutes
2- To skim the text to list and identify the new words .		2- T.puts Ss in small groups to skim the text and list as many words and asks them to find their meanings using dictionaries.	5 minutes
3- a- To infer the main idea and the best heading to each paragraph . b- To analyze the text to answer the comprehension questions. c- scan the text to list the devices that will improve our life.		3- Ss skim the text to discuss the main idea of the text, write the suitable heading to each paragraph and answer the comprehension questions(inferential, referential ..) T. puts Ss in pairs and asks them to list the devices that will improve our life easier.	10 minutes
4- To suggest and think of how new inventions could improve our life.		4-1-T. puts Ss in small groups and asks them to think of what human beings can do now that couldn't do 100 years ago then discuss their ideas with the class. 2- Ss work in pairs to think of new ways to classify animals. 3- T. asks Ss to write what will happen if all animals in the world are extinct.	20 minutes
5- To express the ability of doing things using can/ could		5- Ss complete sentences in the work book using can and could. 6- Ss do the prepared activities (appendix C) in small groups.	25minutes each activity

Appendix (V)

(Lesson plan for teaching the control group using the traditional method)

Lesson Plan / control group

Class/Level: 10th grade Unit Title: Computer games

Number of classes: 5 classes Lesson Title: text1 / fast forward to the future games

Previous Learning: some vocabulary and information about computer.

Specific outcomes	Materials/ resources	Procedures	Time
1- To talk about computer games. 2- To pronounce and identify the new words 3- To answer the comprehension questions from the text 4- To analyze the advantages and disadvantages of the computer games 5- To use the future tense to express their ideas.	-Magazine advertise ment for computer games -Student's Book pages 38-39 - Work Book pages 22-23	1- T uses pictures and magazine advertisement for computer games and asks Ss about them e.g what can you see in the pictures? And what do they know about computer games? 2- T writes the new words on the board and gives their meanings then asks Ss to use them meaningfully.. 3- Ss skim the text to discuss the pre- reading questions in the student's book . 4- T. Writes some comprehension questions(referential, inferential …) on the board and asks Ss to read the text again. T. puts Ss in pairs to discuss the answers of the questions. Ss answer the questions that follow the text in the student's book in pairs. 5- Ss do exercises in the work book using future tense to complete and write the sentences	10 minutes 5 minutes 10 minutes 15 minutes 5 minutes

Lesson Plan / control group

Class/Level: 10th grade — Unit Title: A special zoo

Number of classes: 5 classes — Lesson Title: text 2 / A Shawmari Reserve

Previous Learning: some information about animal reserves in Jordan, names and kinds of animals.

Specific outcomes	Materials/ resources	Procedures	Time
1-To talk about Shawmari Reserve in Jordan	* pictures of animals and reserves * Student's Book pages 50-51 * Work Book pages 32-33	1-T uses pictures of animals and reserves then asks Ss about them e.g what can you see in the pictures? Can you name some natural reserves in Jordan ?have you ever been to Shawmari Reserve?	10 minutes
2- To pronounce and identify the new words		2- T writes the new words on the board and gives their meanings then asks Ss to match the words with their meaning and use them meaningfully.	10 minutes
3-a- To appreciate the importance of the animals b-To answer the comprehension questions from the text		3- Ss skim the text to discuss the pre- reading questions in the student's book . - T. Writes some comprehension questions(referential, inferential …) on the board and asks Ss to read the text again.	10 minutes
		T puts Ss in pairs to discuss the answers of the questions. Ss answer the questions that follow the text in the student's book in pairs. Ss read the text aloud and give their opinions .	15 minutes
4 - To identify the countable and uncountable nouns		4- Ss do exercises in the work book using countable and uncountable nouns to complete the table .	5 minutes

Lesson Plan / control group

Class/Level: 10th grade Unit Title: The power of technology

Number of classes: 5 classes Lesson Title: text 3 / Future shock

Previous Learning: names of some modern technology and inventions and their benefits in our life.

Specific outcomes	Materials/ resources	Procedures	Time
1-To talk about the importance of modern technology in our life. 2- To identify the new words 3-a- To infer the importance of the modern technology. b- To answer the comprehension questions. c- Give examples of how modern technology makes our life easier 4- To express the ability of doing things using can/ could	* pictures of modern technology e.g cars, microwaves , washing machines, DVD players… * Student's Book pages 68- 69 * Work Book pages 45-46	1-T. uses pictures of modern technology then asks Ss to name them and mention their benefits. T. asks Ss to give more examples of modern technology in our life 2- T. writes the new words on the board and gives their meanings then asks Ss to match the words with their meaning and use them meaningfully.. 3- Ss read the text to discuss the importance of the modern technology and answer the comprehension questions(inferential, referential ..) T. puts Ss in pairs and asks them to list the devices and examples of how modern technology helps to improve our life . 4- T. writes some helpful words on the board and asks Ss to write a paragraph about the benefits of modern technology. 5- Ss complete sentences in the work book using can and could.	10 minutes 10 minutes 10 minutes 10 minutes 5 minutes

Appendix (VI)
(The Reading Comprehension Test (Pre and Post –Test)

The Reading Comprehension Test (Pre and Post –Test)

Name :…………………… Class: Tenth Grade
Time: 45 minutes Day & Date: / /

Read the following text carefully, then answer the questions that follow by choosing the suitable answer .

Basketball is one sport - perhaps the only sport- whose exact origin can safely be stated. During the winter of 1891-1892, Dr. James Naismith, a collage instructor in Springfield, Massachusetts, invented the game of basketball in order to provide exercise for the students between the closing of the football season and the opening of the baseball season.

He attached fruit baskets overhead on the walls at opposite ends of the gymnasium, and, using a soccer ball, organized nine-man teams to play his new game in which the purpose was to toss the ball into one basket and **attempt** to keep the opposing team from tossing the ball into the other basket. Although there have since been many changes in the rules (such as the reduction of the number of players on a team from nine to five) , the game is basically the same today. United States soldiers introduced it to the Philippines in 1900 and to Europe during World War1, and being adopted by foreign nations, **it** soon became a world-wide sport. It is interesting that although basketball was created as an **indoor** game, in countries other than United States it is now played almost entirely outdoors.

Question Number One: (15 points)
Answer the following questions:

A- What is the main idea in the text? (3 points)

B- Write down the sentence which indicates that the number of players on the team of the basketball was changed? (3 points)

C- Suggest a suitable title for the text? (3 points)

D- How did James Naismith invent the basketball game? (3points)

E- The passage suggests that basketball has become a popular game. Discuss with examples. (3 points)

Question Number Two: (6 points)

Read the passage and decide whether the following statements are true (T) or false (F)

A- T F James Naismith organized basketball teams that consisted of 5 players each.

B- T F Basketball was introduced to the Philippines during World War1

C- T F When basketball was first invented, players used a soccer ball.

Question Number Three: (4 points)

Complete the following statements as discussed in the passage:

A- Basketball was introduced to Europe by ---------------------

B- James Naismith works as ---------------------------------------

Question Number Four : (5 points)

Circle the letter of the correct answer, there is only one correct answer to each item:

1- The number of basketball players is----------------

a- still the same since the game has been invented.

b- Now bigger than it was when invented.

c- Now smaller than it was when invented.

d- Now 9 in the States and 5 in the Philippines.

2- Which of the following is **NOT** mentioned in the passage?
   a- the origin of the basketball game.
   b- The number of players in basketball games.
   c- The job of James Naismith.
   d- The age of James Naismith**.**

3- The word that is closest in meaning to the underlined Word **'attempt'** is:
   a- play
   b- try
   c- organize
   d- provide

4- The word that is the opposite in meaning to the underlined Word **' in doors'** is
   a- next doors
   b- nearby
   c- out doors
   d- beside

5- The underlined pronoun **'it'** line 13 refers to :
   a- Basketball
   b- Baseball
   c- World War 1
   d- Europe

Question Number Five: (5 points)

List the cleverest, most interesting and unusual ways you can think of for changing basketball game to be more fun and attractive to young people.

Question Number Six: (5 points)

In your opinion, what effects can playing basketball game have on young people? Discuss good and bad effects.

Good luck

Appendix (VII)
Answer Key to the Reading Comprehension Test

Answer Key to the Reading Comprehension Test

Question Number One
A- The origin and development of basketball.
B- Although there have since been many changes in the rules(such as the reduction of the number of players on a team from nine to five, the game is basically the same today.
C- The Game of basketball / The origin of basketball .The researcher accepted the closest suggestions.
D- He attached fruit baskets overhead on the walls at opposite ends of the gymnasium, and using soccer ball, organized nine-man teams to play.
E- It was introduced to many countries in the world and became a world-wide and international sport for example, it was introduced to the Philippines by American soldiers and Europe countries, also it is played all over the world now . Students can write their explanations depending on their knowledge and the researcher accepts the closest and meaningful answer.

Question Number Two:
A - F
B - F
C - T
Question Number Three
A- American soldiers
B- collage instructor
Question Number Four
1- c
2- d
3- b
4- c
5- a
Question Number Five
Open answers
Question Number Six
Open answers